# W. Deering,

## Cotton Press.

No. 68,613. Patented Sep. 10, 1867.

Fig: 2.

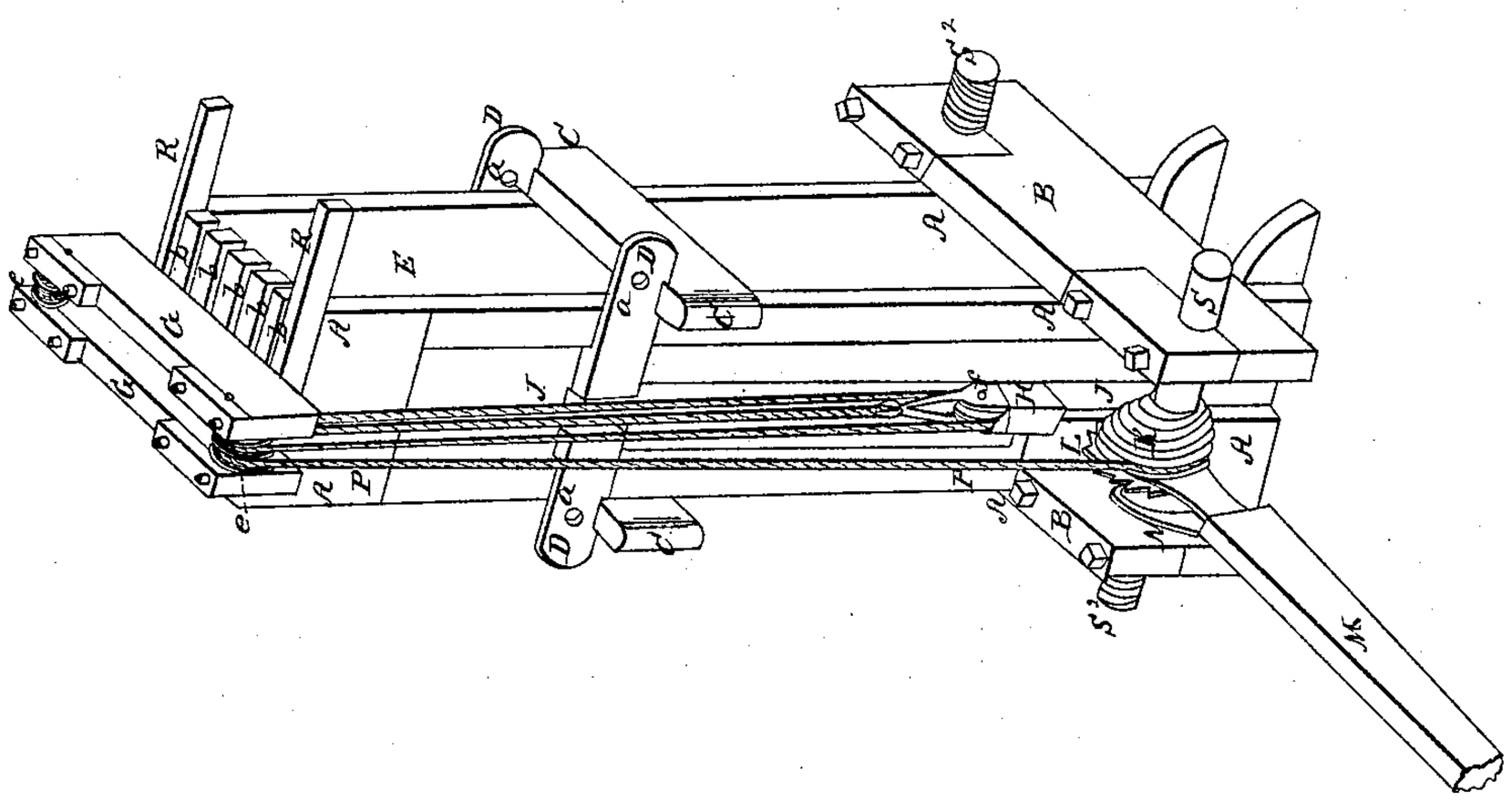
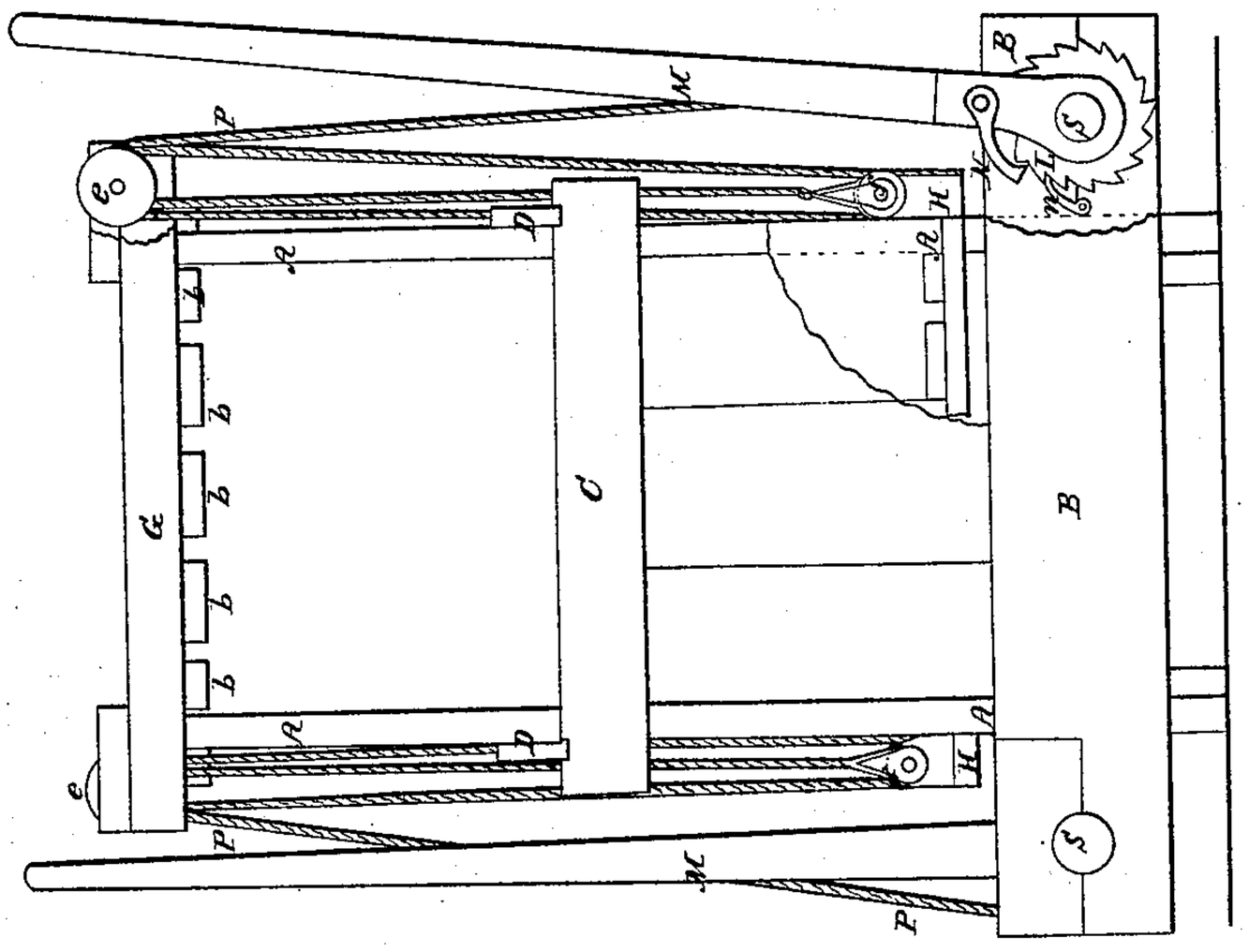



Fig: 1.

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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

# United States Patent Office.

WILLIAM DEERING, OF LOUISVILLE, KENTUCKY.

*Letters Patent No.* 68,613, *dated September* 10, 1867; *antedated August* 26, 1867.

## IMPROVEMENT IN COTTON AND HAY PRESS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, WILLIAM DEERING, of Louisville, State of Kentucky, have invented a new Mode of Constructing Presses for Compressing into Bales Hay, Cotton, or other Material; and I declare the following specification, with the drawings forming part thereof, to be a full and complete description of my invention.

Figure 1 represents a front view of the press with a portion removed to show the machinery within.

Figure 2, a perspective view of the press.

Similar letters denote the same parts of the apparatus.

A A is a strong oblong box, its two ends closed from top to bottom, the sides or fronts closed for about two-thirds of the distance from bottom to top, and the top and bottom are both open. Along its sides and at its bottom it is strengthened by stout clamps or cheeks of plank B B, which project beyond the ends of the box in order to carry a portion of the machinery for operating the press, hereafter described. At the top of the closed part of the sides the box is also strengthened by stout clamps C C, cross-tied by end ones D D. That part of the box E which is open above C is to be closed with strong doors, (not represented in the drawings, not being necessary to explain the working of the machine,) opening downwards, being hinged on pivots passing through sockets *a a* in D D. The box is covered, when the machine is worked, with a platen, so-called, formed of wooden bars *b b*, with spaces between them, in the usual way in which they are made for such presses, for the purpose of passing the ties by which the bales of hay or cotton are secured after they are compressed. These bars are attached to a pair of parallel bars, G, above them, placed a little distance apart and projecting over each end of the box in order to carry there a pair of pulleys or sheaves, *c c*. A movable platen, also constructed of bars in the usual way, is fitted to the interior of the box to move upward and downward within it, with arms H projecting beyond the ends of the box through a slot, J, fitted for their passage from the bottom to the top of the enclosed part of the box. To each arm H is attached a single-sheaved block, *f*. The motive-power is at each end of the machine, and is constituted of a shaft, S, fitted to revolve horizontally between and through the cheeks B B. Upon this shaft is fixed a conical barrel, K, with increasing volute channels to carry a rope or chain, similar to the fusee of a watch with its chain; also a ratchet-wheel, L. This ratchet is worked by a lever, M, with its pawl N arranged in the usual manner. A check-pawl, *n*, shown in fig. 1, is fitted to the frame of the machine. A rope or chain, P, fastened to the end of the largest volute of K passes upward and over one of the sheaves at *e*, thence downward to and around the sheave at *f*, thence upward and around the other sheave of *e*, and then downward and secured to the strap of block *f*. This is done whilst the lower platen is at the bottom of the box, the dimensions of the fusee-barrel K being so proportioned that when the rope P shall occupy all its volutes the platen shall arrive at C C, or the top of the closed part of the box. In order to insure the accurate working of the rope upon the fusee, that volute upon which it is being wound should be opposite the centre of the arm N. This is done by forming one end, $S^2$, of the shaft S into a screw, with threads of a proper pitch to advance the shaft at the proper rate to produce the desired effect, and making a female thread fitting the screw within B. In order to fill the box with material from the top it is necessary to remove the upper platen to one side. For this purpose the arms R R are placed projecting from the top of the box, so as to receive the platen when it is so moved to uncover the box.

To operate the machine, close and secure the doors, move the upper platen to one side, place the movable platen at the bottom of the box, put the hay or cotton into the box, replace the upper platen, then, by the levers M, revolve the shaft S, raising the lower platen until it reaches the top of its course, then in the usual way secure the compressed material into a bale, open the doors, and remove the bale. The operation and effect of the volute barrel K is this: The larger volutes exert less power upon the rope or chain, and consequently upon the moving platen, than the lesser ones, in reference to the motive-power applied to the levers M; consequently, as the rope winds from the larger to the lesser volutes, the pressure of the platen upon the material pressed increases as it ascends in the inverse ratio of the distance of the rope from the axis of the shaft S, so that in machines of moderate dimensions, arranged as shown, the pressure of the platen upon the bale, when completed, may be six to eight times greater than when it started on its course. By increasing the number of sheaves (for I do not limit myself to the number described) and the proportions of the volute barrel accordingly, the relative pressure may be increased to any required extent.

The arrangement by which the upper platen, although removable, is during the operation of the machine

immovable, and the lower platen moves to effect the pressing, is an important feature in this press. In other presses, where the upper platen is the movable one, the removing of the same between each charge of the box, and necessarily disconnecting it from the working power, is a source of great delay and trouble. By my arrangement a slight slackening of the rope permits the platen to be removed without inconvenience or material delay.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The shaft S, with the fusee-barrel K, in combination with the rope P and sheaves *e* and *f*, and the lower platen H, arranged and proportioned in the manner and for the purpose described.

2. The screw terminal $S^2$ upon the shaft S, fitted into a female screw within B, in the manner and for the purpose described.

3. The arrangement of the platens, by which, when operating, the upper one is stationary and the lower one movable, in the manner and for the purpose described.

4. The combination of the lever M with its ratchets and pawls, shaft S, fusee barrel K, screw $S^2$, rope P, sheaves *e* and *f*, upper and lower platens, and box A, in the manner and for the purposes described.

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Witnesses:

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